

## 18.4: Discussion

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### **Discussion (30 points)**

Write a minimum one-page (12 font, single spaced) discussion on the experiment conducted this week. **The assignment will be graded on completeness, clarity of the explanations and the meaningful integration of the collected and calculated data.** Correct grammar and appropriate format for the chemical formulae and chemical reactions is expected. **You may use the outline included at the end of this document on how to build your essay to address each category.**

1. Define ideal gases in your own words and describe the conditions under which a gas will behave as an ideal gas.
2. Describe your experimental conditions and compare them to the conditions described in your answer to Question 1. Explain how this knowledge influences the type of equations that you can use to do your calculations.
3. Describe and explain the method you used to identify the volume of the kernels. Explain why the volume of the kernels was only found before popping, but after popping was not found. Use your calculated values to support your arguments.
4. Identify at least one assumption that you made about the volume of water in the kernel. (HINT: there are other things in a kernel).
5. Propose at least one way the volume occupied by water inside of a kernel could be more accurately determined.
6. Give a supported argument for why this experiment should be done with more than one kernel.
7. Explain why oil is used.
8. Explain why the inside of the flask was wiped before the mass was recorded.
9. Compare the pressure values calculated with others either in your lab or check the internet for results and note your sources. Comment on the accuracy and precision of the experiment.
10. Predict and explain the result of placing the kernels in an oven at low temperature for two hours prior to performing this experiment versus soaking the kernels for 2 hours in water prior to performing the experiment.
11. Propose at least one modification that would improve this experiment.
12. Identify the pressure in an unopened can of soda.
13. Find the maximum pressure a soda can is able to resist before exploding.
14. If you leave a closed can in a 120°F temperature car, will it explode?
15. Identify the pressure in an open can of soda before and after boiling the water.
16. Comment on what happened to the pressure inside the can after it was turned into the water bath.
17. Look up the definition of phreatic eruption and comment on whether its more similar to the explosion of the popcorn or the implosion of the soda can.

### **Recommended discussion outline:**

The concepts I used in this experiment were...

The most important aspect of this experiment was...

The purpose of the experiment was (Hint: it was not to make things explode) ... By performing this experiment, I learned...

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